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Epping Forest.

FORESTS in English law, according to Blackstone, are "waste grounds belonging to the king, replenished with all manner of chase or venery, which are under the king's protection for the sake of his recreation and delight." Three hundred years ago Manwood wrote: "A forest is a certain territory of wooddy grounds and fruitful pastures priviledged for wild beasts and foules of forest, chase, and warren, to rest and abide in in the safe protection of the king and for his princely delight and pleasure." In this legal sense and in the colloquial language of former times in England, trees were only incidents, and not essentials, of a forest. Of course, forests were largely wood-clad, but the trees were considered of use chiefly as a game cover just as the pasturage was valued for the support of the game. In England at the present day, as in our own country and in other European countries, the terms "forests" and "forestry" are applied to stretches of woodland which produce fuel, timber and what are known as forest products, and a forest need not be a game preserve.

What is now known as Epping Forest is the remnant of a once extensive royal hunting-ground which embraced a large portion of the county of Essex. It was gradually reduced as portions of it were disafforested until, in 1640, it embraced some 60,000 acres, 12,000 being unenclosed wastes and woods, and the remainder to some extent cultivated, but subordinated to the hunting rights of the crown. As suburban land increased in value and the utilitarian spirit of the age began to consider it a crime to allow land to lie idle which might be cultivated, the boundaries were gradually contracted until in 1850 there were only 6,000 acres which were not fenced in, and during the next twenty years, under some injudicious legislation, half of this was enclosed and more or less built upon. About 1860 several persons of influence organized a Commons Preservation Society to resist encroachments upon open spaces belonging to the people, and began to take action in regard to the common land about London, and after a legal contest which lasted fifteen years the courts decided the case in favor of the Corporation of London, which had been fighting the battle for the society and the people, with the final result that 5,542 acres were saved for the people to be theirs by inalienable right for recreation and enjoyment forever.

As it now exists, Epping Forest is a long and comparatively narrow stretch of rolling woodland and grassy spaces not enclosed, and in many places pastured on by the cattle of the commoners who still hold this right. The interesting fact in relation to this great pleasure-ground and the many small outlying spaces that belong to it is that within an hour's ride of the heart of the city of London this long stretch of wild woodland remains devoted to public use. The act which put the forest under the management of the Epping Forest Committee, which consists of twelve members of the Court of Common Council and four verderers resident within the forest and elected by the commoners, provides that "the Conservators shall at all times, as far as possible, preserve the natural aspect of the forest." This injunction accords entirely with a very strenuous public opinion which holds that the Forest shall "remain a forest and not be civilized into a park." To this end the Forest contains scarcely any roads except the regular county traffic roads which traverse it; there are no gravelled or asphalt paths, no trim borders, no exotic shrubs or trees. There is a Green Ride, which is a turf wood-road traversing the forest, and visitors can wander at will through the groves and thickets, but they will find no attempt to sophisticate the landscape. The natural underwood grows at will among the trees, the native sedges and grasses are left about the fringes of the little ponds, the shrubbery by the wayside consists of Wild Roses, Broom and indigenous bushes. Shy dark-brown fallow deer can be seen occasionally in the dense cover, and the beautiful little roe deer also makes its home in the thick woods, and generally the place is as untamed as nature can make it. To one driving along the main road the dense undergrowth on the forest border looks quite impenetrable, but, once within it, there is no difficulty in walking among the trees, although one can easily get lost in the woods almost within the sound of the roar of London. The visitor who canters over the Green Ride in company with some one who knows the forest thoroughly, especially if he has the good fortune to be guided by Mr. McKenzie, the Superintendent, who succeeded his father in the position and who knows every foot of it and all its varied beauties, can pass days of delight in exploring its many attractions. As the result of careful study, points have been selected on high ground, where by cutting away a few trees broad and refreshing views across the forest can be secured, and there are elevations which command smiling pastoral landscapes in Essex on the north and east and Hertford on the west, while from one point at least the dome of St. Paul's can be seen hanging against the southern sky, while the base of the cathedral and all the city lies hidden in the mist.

To Americans accustomed to the luxuriance and variety of our own forest growth the Epping woods are somewhat disappointing at first, because they are made up of so few species, and still more so because the trees over such large areas have been pollarded—that is, cut back, branch and stem, every fifteen years to seven feet from the ground to furnish fuel for the commoners. This mutilation of the trees has now been discontinued, of course, but when left to themselves these pollards become shock-headed specimens which have little beauty. Of course, there are many fairly good trees, although none of them match the venerable Oaks of Sherwood or the Beeches of Burnham. In High Beech, Monk Wood and some other parts of the forest, groves of good trees rise above the level of the others which have been unsparingly robbed of their tops for generations. In spite of its maltreatment, however, the great central mass of the forest, which lies in a single block some four miles long and covers four thousand acres, is a wild and beautiful wood of Oak, Beech, Hornbeam, Crab, Maple, Thorn, Birch and Holly, and one can find unalloyed pleasure in riding along its bridle-paths or wandering through its intricate by-ways. The names

Monk Wood and High Beech call to mind the fact that in this forest, as in every other part of England, there is hardly a hill or vale or even a thicket which has not a name which it has borne for generations. Wintry Wood, Epping Thicks, Broad Strood, Honey Lane, Long Running, Black Bushes, Fairmead Bottom, Round Thicket, Buttonseed Corner, The Hawk Wood, The Great Shrubbage, Rushy Plain and many more are picturesque reminders of some feature, or interesting as preserving some bit of local history. It is a pity that some of our own park-makers could not take a lesson from this habit and use the old names of the places which they have converted into pleasure-grounds when any such exist, instead of inventing some sentimental compound often from another language.

This adhesion to the old name in the forest is part of the conservative spirit which insists on letting everything alone, so that even when a tree falls the branches are cut away and the trunk is left to serve as a seat where the visitor may rest. And just here comes a problem which will grow more and more puzzling as time goes on. The people who insist that the forest must remain just as it is ought to know that these mutilated pollards are anything but natural, that they are permanently disfigured and will never make respectable upright trees. The managers of the forest are aware of this, and they know that the pollards stand too thickly for their own wholesome development, while the dense growth of their spindling branches will destroy the beautiful undergrowth which took possession of the ground when the lopping of the trees let in the light and air. They are aware that these clipped and artificial trees should be severely thinned out, and although some of the gnarled and twisted trunks should be left for their picturesque qualities, a vigorous use of the axe is the one thing which the forest most needs. And yet in England, as in America, whenever a tree is felled the people raise a clamor as if it were a desecration, when really this is only helping nature to reassert herself and encourage genuine woods to take the place of an unnatural growth. Young trees in abundance are coming up, and if an opportunity were only given to them the whole territory could be renovated in fifty years and be a thousand times more lovely than it would be if let alone.

And another problem will soon be pressing. Many parts of the forest are now thronged with visitors, but other parts are often so lonely that one can find in them almost the solitude of some of our primeval woods. As the giant city sweeps to the north and envelops the Forest the numbers of people who come to refresh themselves in its dark recesses will multiply. It will then be more difficult to preserve the charm of natural forest conditions. The undergrowth will be trampled to death; there will be need of drainage to make dry walks, and this will sap the life of some of the trees; the by-paths will be worn wider; the turf in the green roads will be ruined. Then will come the same problem which presents itself to the park-makers in our own country, where land is set apart for refreshing the bodies and the minds of invading multitudes—the problem how to provide for human convenience most completely and yet save as much of the poetic beauty of the wood as possible.

Plant Names of Indian Origin.—V.

Tamarack (Larix Americana).—"The numerous descendants of the Dutch in New Jersey call it [Larix] Tamarack" (Michaux, *Amer. Sylva*). The name was in use in Pennsylvania also at an early period. If the word were Indian, as all dictionaries tell us, it would be Algonkin and belong to the Delaware dialect of that language. But no meaning can be extracted from it in its present form, and I have not been able to find any other. The Algonkin root *tam* means "to cut," and *ak*, as an inseparable suffix, designates a "standing tree," but the presence of the r renders the word meaningless. If we reject this letter, we have a word meaning "tree cutter," an eastern Algonkin name for the beaver. Two explanations suggest themselves: (1) The word may be a corruption of tacamahac, another early name for the same tree, or (2), more probably, an alteration of tamarick (for Tamarix, the species Gallica of which is sometimes called "Cypress" in England), and which may have been fancifully applied to the American Larch by the early colonists from England, to which the European species is not indigenous. In a list of New York plants given in Macauley's *History of New York* (1829), the popular name "Larch" is accompanied with its proper scientific designation, but opposite the name "tamarac" is placed the genus name Tamarix, without any indication of species. It is evident that the compiler of the list regarded the word tamarack as a corruption of tamarisk, vulgo tamarik or tamrik. The Larch does not seem to have been put to any important economic use by our Indians, and there are, therefore, but few Algonkin names for it. None of those in my possession bears the least resemblance to the word under consideration. The name has been transferred to several western conifers.

Titi, or Ty Ty (Cassandra calyculata, var. angustifolia).—A name of the plant in one of the Indian languages of Florida. It probably belongs to a dialect of the Timucua family, now extinct, but which formerly occupied most of the peninsula. A root is sometimes, as in the word under consideration, reduplicated in Indian languages (especially in the Carib dialects, to which the Timucua is supposed to have been related) to indicate that the object specified by the name thus formed is of very common occurrence or exists in great abundance. Such is the case with the Cassandra, which, according to Williams (*Territory of Florida*, 1837), grows in crowded masses and constitutes the principal shrub of the Florida "galls" and swamps. The name has been applied also to Cliftonia ligustrina.

Tobacco (Nicotiana).—From *tobaco*, the Taino (Haytian) name for a Y-shaped inhaler, the branches of which were inserted into the nostrils, while the stem was thrust into the smoke of the burning herb. The name of the plant (N. Tabacum) in the same language was cohiba.

Tomato (Lycopersicum esculentum).—Formerly spelled tomata, from Aztec *tomatl*, through Mex.-Span. tomate. It is stated in Appleton's *Cyclopedia* that the name means "water-berry"; but this is an error. The word is from a radical *toma* (the meaning of which in this connection cannot now be ascertained), with the suffix *tl*, used in the Aztec language to form nouns. As far as we can judge from its applications, it seems to have been used simply as a name for "fruit" without restriction (as in the case of *tzapotl*, "sweet fruit," and *xocotl*, "sour fruit") as to character. Hernandez, in his chapter "De Tomatl" (*Thes. Rerum Medic. Mex.*, ed. Reccho, 1649, p. 295), describes several different kinds of *tomatl*, and, among them, the *xitomatl*, or "gourd tomate,"* which his editor identifies as the Poma Amoris (the Lycopersicum esculentum of modern botany). The word, with qualifying prefixes, was the name of the fruit of several different genera of plants—Lycopersicum, Physalis, Solanum, Saracha, Phytolacca, Arbutus, Quercus, etc.

Tuckahoe (Orantium aquaticum).—"Out of the ground, the [Virginia] Indians dig earth-nuts, wild onions and a tuberous root they call Tuckahoe, which, while crude, is of a very hot and virulent quality; but they manage to make bread of it" (Beverly's *Hist. of Virginia*). This was probably Peltandra alba. Clayton's *Flora* assigns the name to the subterranean production called by Fries Pachyma cocos, sometimes styled Indian Loaf ("ad panem conficiendum Indi utuntur"—Clayton), and, by the Pamlico Algonkins, *okeepen*, "earth-root" (Hariot). The name was generic among the eastern Algonkins for round or roundish roots, and was also the name of an Indian "loaf," because of its shape, just as we say "roll" for bread so fashioned. The word is from *p'tukweoo*, "it is round," "it is shaped like a ball."

* So called from its resemblance, in shape, to a small Mexican cucurbit called *xicalli*.

TULE (Scirpus lacustris, S. Tatora and Cyperus flavicans).—Introduced through Spanish from Aztec *tulli* or *tolli*, a general name in that language for bulrushes.

WAHOO (1) (Euonymus atropurpureus).—From Dakota (Siouan) *wahoo* (the first vowel nasalized), meaning "arrow-wood." Spelled also Waahoo and Whahoo. (2) (Ulmus alata). From Muscogee (Choctaw-Muscogee) *úháhwú*, a word of unknown meaning.

WAMPAPIN (Nelumbo lutea).—From one of the western Algonkin dialects, probably Odjibway. It means "white root," and refers to the color of the inside of the farinaceous edible tubers.

WAMPEE.—A name of South Carolinian origin, assigned by Drayton (*View of S. Carol.*, 1802) and Shecut (*Flora Carolinæensis*, 1806) to Arisæma triphyllum; by Elliott (*Bot. S. Carol.*, 1817-24), Barton (*Flora Philad.*, 1818), Darby (*Bot. Southern States*) and others to Pontederia cordata, and by Rafinesque (*Med. Flora*, 1830) to Peltandra alba. Of the four languages formerly spoken in what is now the state of South Carolina, the name can be referred only to the Shawnee (Algonk.), in which the word would mean "it is white." In the case of Arisæma and Peltandra, this would refer to the color of the inside of the farinaceous root-stocks, which, after being boiled or roasted, in order to destroy their acridity, were eaten by the aborigines. As applied to the Pontederia, it would refer to the color of the farinaceous seeds, which likewise were used by the Indians as a food material.

WHIPSIWOG (Erechthites hieracifolia).—From Cree (Algonk.) *wippisiwok*, "they are hollow," like a tube.

WICKOPY (Dirca palustris).—An Algonkin word meaning "tying bark"; Abnaki, *wighebi*; Delaware, *wigebi*; Odjibway, *wigob*, etc. The tying-bark par excellence of the aborigines was the bast of the Linden, and it is that to which the above Algonkin names refer.

WICKUP, or WICUP (Epilobium angustifolium).—An alteration of the foregoing word; transferred from some species of Osier used as withes.

YAMP, or YAMPAH (Carum Gairdneri).—From the Snake or Shoshone (Shoshonean) name for the root, which is highly esteemed by these and other Indians as an article of food.

YAPON, YAPOON, YAUPON, or YOPON (Ilex vomitoris).—Probably a derivative from Catawba (Siouan) *yap*, or *yop*, "tree," "shrub," or from *'yap'hâ*, "leaf" ("tree-hair"?). (The Muscogee name of the plant was *ássi lupútski*, "small leaves," usually abbreviated to *ássi*, "leaves," literally, "hairs" (of plant). The leaves, having been extensively used by the southern Indians for the preparation of an exhilarating beverage (called "black drink" by the early British traders), gave their name to the shrub itself as well as to the potion prepared from it.

New York. *W. R. Gerard.*

Delights of a Rough Garden.

IN offering suggestions on gardening to the enthusiastic beginner it is usual to lay down at the outset a few unmistakable rules for his prudent guidance: Undertake no more than you can care for with thoroughness. Neatness is the first essential. Be content with small beginnings, and so on indefinitely.

The pleasures of the opposite plan, the rich satisfaction of a big, rough garden, in which beginnings and complete successes are somewhat loosely connected, and yet where freedom and beauty do live together in harmony, these attractive possibilities seldom find an advocate. On the strength of an experiment now in its fourth year I beg leave to put in a plea for the garden in which neatness is not a first essential. It seems quite possible to make a kind of treaty with Nature, in which she consents to do for a rough, yet much-loved garden filled with all sorts of tentative beginnings of loveliness, that which she does with so much charm for any old, abandoned garden left wholly to her possession. The lover of wild beauty, who loves tamed and cultured beauty also, may find an opportunity for gardening upon this scale on any little country place of a few acres. With grass and trees, and, if possible, a varied surface to begin with—and these are everywhere in our eastern states the commonest conditions—there is abundant opportunity for the evolution of a beautiful garden.

The opportunity need not be restricted by the theory that every inch of ground broken must be kept under strict and exact cultivation. Roughly blocked out, with here and there an oasis of shrubbery established, a group of trees set, a screen of vines thrown up, a fence-line bordered with hardy perennials, the free garden on a bold scale may be the source of great enjoyment to the originator, even while its actual splendor is still the gift of the imagination.

Obviously the first step in making a garden which is to wander at will over one or many acres, must be a careful study of the best capabilities of the ground. A great number of rare, beautiful and costly plants, brought together at random, may represent, not beauty, but vulgar profusion, although they may be cared for with the greatest outlay of labor and the most exact precision; neither is mere mechanical order a thing of charm. With a good general plan, in which every feature is carefully considered and given its due place, every step accomplished helps the general effect. Variety in unity, multiplicity with harmony, these do not come as a matter of course or unsought where man has meddled. There must be a why for the place of every tree, every shrub, every winding path. If something quite different would do just as well there is proof positive of the lack of a well-thought-out plan.

Yet "I like it so" may be a sufficient reason. One of the great merits of this liberal scheme of gardening is the greater room it affords for the play of individual fancy. So many elements enter into the pleasure that we take in natural objects—association, with its subtle appeal, or that delight, not to be analyzed, which we receive from the sight of a special tint of color or quaintness of form, indifferent to one, to another a vivid joy; or the coveted pride may be the culminating glory of a definite period, as Lilac time or Rhododendron days—these are the delicate influences that may help to shape our own rough garden. At the bottom there is the delight of making it one's own. For man's delight in expressing himself is one of the deepest and most obstinate of human instincts. To make a little paradise of a bit of earth that bears upon its bosom the fruits, the flowers, the greenery that we love best, a bit of common soil expressive of our loves and likings, our individual tastes and aversions, this is one of the unfathomable joys of life. This is worth years of spring-time and long wintry sleep; years of wooing and winning, of coyness and final fruition.

One of the delights of a rough garden is its continual surprises. With the habit of tucking in seeds, cuttings, roots and bulbs, as occasion serves, planting and sowing without formality, there is something very delightful in the apparent spontaneity with which unlooked-for bloom and beauty often come to light. Broad mixed borders in which hardy plants are irregularly grouped (not without a constant study of the advantages of contrast and relief) make this the simplest matter possible. The Iris or the Lily bulb is buried, the seed is sown and the ground occupied staked to prevent accidents; suddenly, as it seems, a new shape of delicate beauty greets the eye. A big rough garden gives an encouraging opportunity to experiment. Tiny bulblets (as those found on the stems of Tiger Lilies) are gathered on a country ramble from the wayside garden of a dismantled house; they fill a vacant bit of space, and soon a great clump of solid green lifts its flame-like spires, to last in their place how long? A hundred years it may be, so some one has said. At midsummer you find a hedge of Hollyhocks in bloom. You gather a handful of seed as they ripen, and give them room in a remote corner. The green rosettes of the young plants cling to the ground, almost unnoticed and unremembered, but another year and who can ignore that marshaled magnificence? Not an-

nuals and biennials merely, but shrubs and trees also increase and multiply with extraordinary ease in the rough garden, where the discipline is not too severe. Fruit and flower, shade and fragrance, homely use and stately adornment mingle happily here in the garden held in partnership with Nature.

Fruit-trees, hardy shrubs, climbers and flowering perennials, the chief elements required for the formation of a garden of this type, are now supplied in unprecedented variety and at trifling cost. It is surprising that more summer residents in the country do not taste for themselves the full flavor of this inexhaustible recreation and delight of making all sorts of exquisite and delightful things grow where not one grew before.

Amherst, Mass. *D. H. R. Goodale.*

Plant Notes.

Viburnum cassinoides.

THE value of the eastern American Viburnums as garden plants has been pointed out over and over again in these columns. With larger acquaintance and better opportunities for watching them in cultivation, our admiration for this group of plants increases, however, and we offer no excuse for recurring to it again. Nearly all the species are good garden plants, the only exceptions being the Hobble-bush, Viburnum lantanoides, the most beautiful, perhaps, of the entire group, but an exceedingly difficult plant to manage in cultivation, and Viburnum pauciflorum, a diminutive boreal and alpine representative of the Opulus section of the genus. The flowers of this slender shrub are not particularly showy, and in the Arnold Arboretum, at least, where a great deal of attention has been given to the cultivation of these plants, it has never flourished. It is certainly needless to speak here of the Cranberry-tree, Viburnum Opulus. Every one knows this tall shrub either in its natural state, with flat cymes surrounded with large white ray-flowers, or in its sterile form, in which all the flowers are neutral and it is the garden Snowball. This shrub grows all through the northern temperate zone, and the best form in cultivation is one which came originally from northern China, and was first raised in the Arnold Arboretum.

Viburnum pubescens and Viburnum acerifolium are both low shrubs of good habit with abundant white flowers and brilliant autumnal foliage. Viburnum dentatum and Viburnum molle are large shrubs with glossy, sharply cut leaves, ample clusters of white flowers and beautiful bright blue fruit. The former flowers at least two weeks earlier than the latter, which, although of more southern range, is equally hardy and equally desirable as a garden plant.

Our two tree Viburnums, Viburnum Lentago and Viburnum prunifolium, the first of more northern range, are well suited to decorate American parks, where they can be used with great effect on the borders of wood roads or the margins of woods in company with native Thorns, the Flowering Dogwood, the Red-bud and several other small trees for which the silva of eastern North America is specially distinguished. These two Viburnums are plants which last a long time and continue to improve for many years. In good soil they often grow twenty feet tall and make heads at least twenty feet through. Like all the plants of this group, they are distinguished in appearance, and it is a pleasure to see them at every season of the year.

But the best garden plant among our Viburnums is Viburnum cassinoides, of which a figure appears on page 305 of this issue. It is a common inhabitant of northern swamps, and is distributed from Newfoundland to the Saskatchawan and southward to New Jersey. In its native swamps this Viburnum is a straggling shrub sometimes twelve feet in height, but in cultivation it makes a very compact symmetrical bush five or six feet tall and broad. The leaves are thick, leathery and rather dull green, and the flowers, which are pale straw-color, or nearly white, are produced in compact, pedunculate, flat, five-rayed cymes four or five inches in diameter. They are succeeded by abundant fruit, which is pale green at first, then bright rose-color, and finally dark blue-black, berries of the three colors often appearing together in the same cluster.

Viburnum cassinoides has been used in great quantities to decorate the margins of the roads through the Arnold Arboretum, and seedling plants show a decided tendency to vary both in the size and form of the leaves, in the size of the flower-clusters, which are flat or rounded above, and in the color of the flowers. This tendency indicates that if large numbers of plants are raised from seeds individual plants may surpass in some particular of foliage, habit or flower any of the plants of the normal type, and a desirable variety may be established. Although it has been said many times before in this journal, we cannot refrain from saying again that among the hardy shrubs of all countries there are very few which surpass Viburnum cassinoides in beauty and in all those qualities which make a shrub desirable.

Castanea dentata.—The American Chestnut is one of the small number of our forest-trees of the first size which is conspicuous for its flowers, and since it blossoms in midsummer when it has no rivals in this respect it attracts still more attention. These flowers, which appear in tassel-like masses, are made up of aments from six to eight inches long, the green stems covered for the whole length with crowded flower clusters. Their cream-colored blossoms show to the best advantage among the dark green leaves, and in early July Chestnut-trees in flower, whether standing by themselves or in the forest, are striking objects in the landscape. But the Chestnut is beautiful at every season, and a full-grown tree, with its broad, dome-like head and massive trunk, appears as sturdy as any Oak. The foliage is rich glossy green, and it is rarely injured by fungous diseases or insects. No tree grows so rapidly on the dry gravelly hillsides of the north-eastern states, and for various purposes it is one of our most useful timber-trees. It has the peculiar merit, too, of throwing up shoots from the trunk which become large enough for fence-posts or railway-ties in a few years, so that a Chestnut forest can be cut over every thirty or forty years, and continue productive for generations. The abundant nuts of this tree are much better in flavor than those of the Japanese or European trees, and there is little doubt that by proper selection a strain of nuts of large size could be produced, and when the population of this country increases so as to make it necessary to husband our home food supply, our own Chestnut-tree may become as important for the production of nuts as its near relatives in southern Europe.

Hemerocallis aurantiaca major.—A year ago it was stated in one of Mr. Watson's letters to this journal that a first-class certificate had been given to this handsome Day Lily by the Royal Horticultural Society. In the last number of *The Garden* received here there is a good picture from a photograph of a plant in flower. We have never seen this plant flowering in this country, but as it appeared in the Botanical Garden at Oxford a few weeks ago it was worthy of all the commendation which has been bestowed upon it. In form and habit it seems to resemble Hemerocallis fulva, so common in old-fashioned gardens, but the flowers are much larger, fully six inches across, and of a uniform deep yellow. It has especial value since it flowers after H. flava, which we have often commended as one of the best of garden plants, with its fragrant lemon-yellow flowers on long naked stems. A large vase filled with the long-stemmed flowers of either of these Day Lilies is a very imposing object. H. Dumortieri is another good plant, although its deep orange-yellow flowers are borne on shorter stems and they have no fragrance. It is admirable, however, for massing on shrub borders like the old H. fulva, or Mahogany Lily, as it is sometimes called. H. Thunbergii is another garden species which ought to be better known, for it is quite as easy to grow as any of the

rest. Its flowers are borne on long stems and they are a clear yellow, of a lighter tint even than those of H. flava. It has the merit of being later than any of those mentioned, and is at its best here in the latter half of July.

Cultural Department.

The Hardy Plant Border.

A MASS of the common Prickly Pear, Opuntia vulgaris, has been one of the most attractive features of the hardy plant border for the past month. The flowers are two inches in diameter, and of a bright yellow color and produced in great numbers, each of the flattened stems bearing from three to seven flowers. O. Rafinesqii has also flowered well. The flowers of this species are rather larger and have more substance than those of O. vulgaris. O. oplocarpa is a larger-growing species than either of the preceding; the flattened stems are more rhomboidal in outline, and of a bluish green color. Opuntias should be massed to be seen at their best. They are not particular as to soil, but they require an open sunny position. We usually throw a little light covering over them in winter, though I believe they are perfectly hardy without. The plants are easily propagated from seed or by breaking up the stems in early spring.

Callirrhoë involucrata, a prostrate malvaceous plant, is just now one of the best things in flower in that family. The beautiful crimson flowers are two inches in diameter, and are fine for cutting, the flower-stalks being from eight to twelve inches long. It blooms continuously from July until October. It is a perennial and delights in a good rich soil and an open position. Sida indica, another malvaceous plant, is in flower here for the first time. The stems are eighteen inches high and much branched. The leaves are cordate, three inches long by two wide. The flowers are carried singly on short petioles from the axils of the leaves; they are about one and a half inches in diameter and of a pale buff, a color unusual among flowers. The whole plant is covered with soft downy hairs. Commelinas deserve to become more popular than they are at present. A bed of C. cœlestis, a Mexican species, is just now in full bloom. The plants are of bushy habit, one foot high, with sheathing oblanceolate leaves three to six inches long by two broad. The flowers are in clusters and produced on stalks two to four inches long. The color is of the brightest blue; they close, however, about noon, but they are particularly

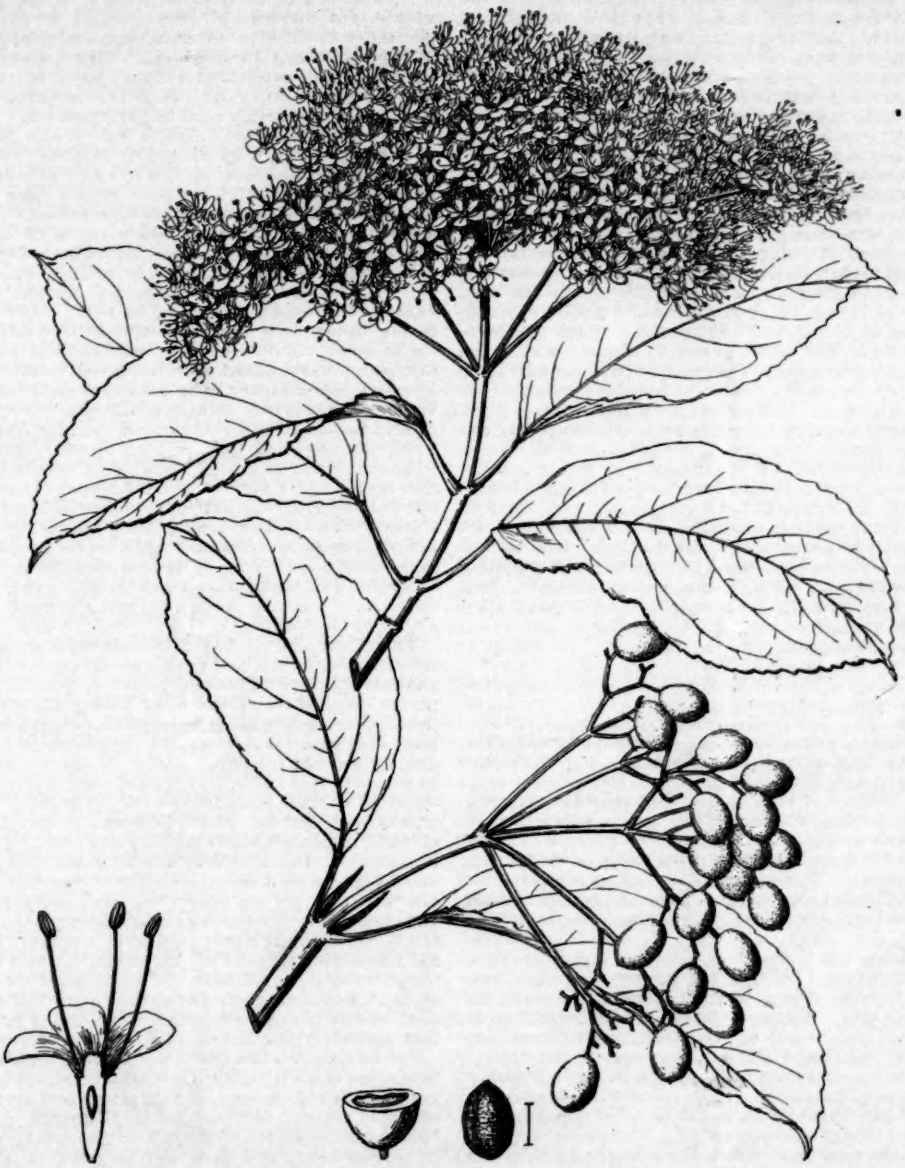

Fig. 41.—Viburnum cassinoides.—See page 304.

beautiful in early morning. They have thickened fleshy roots and must be lifted before winter and stored in sand, as Dahlia roots are, and they must not be allowed to get dry. C. Hasskarlii, an East Indian species, is more spreading and weedy in habit, though the flowers are of the same color as those of C. cœlestis.

Last year we received a plant from Thomas Meehan, of Germantown, Philadelphia, under the name of Betonica rosea, and this is one of the best perennials we have. It belongs to the Labiate family and grows a foot and a half high. The leaves are opposite, oblanceolate in outline, four inches long by two wide, with crenated edges. The flowers are in close terminal whorls and of a lovely rosy pink color. This plant has often been mistaken for an Orchid. According to the *Index Kewensis*, the name of this plant is now changed to Stachys grandiflora. A mass of the well-known and useful Stachys Betonica is now in full bloom, and the purple spikes of flowers make a good display at this season. The variety grandiflora has much larger leaves and flowers than S. Betonica, but does not appear to flower as freely. They both do well in almost any position, but they like best a moist rich soil.

Trachymene cœrulea, a west Australian umbelliferous annual, is now flowering in this garden. The stems are two feet in height and branched. The trifoliate leaves are sessile and about three inches long by two wide and deeply lobed. Both stem and leaves are thickly covered with soft hairs. The flowers are light blue in color and borne in a simple umbel from two to three inches in diameter. The flower-stalks are about eight inches in length. I consider this one of the best annuals we have. Erysimum Perowskianum is another good annual belonging to the Mustard family, and which deserves to become popular. The plant grows to about one foot in height and is of a bushy habit. The leaves are lanceolate, four to six inches long by half an inch wide, and sessile. The flowers are borne on erect racemes and are of a reddish orange color and sweet-scented. Both plant and flowers closely resemble some of the dwarf forms of the English Wallflower. It stands the sun well and flowers almost all summer. It is most useful for the front of the herbaceous border and for cutting purposes. It is a native of the Caucasus.

Catananche lutea, a composite annual, is of a low straggling habit, but is very showy and useful for cutting. The leaves are sessile, six to eight inches long by two wide, with toothed edges. The flowers are yellow, with a chocolate centre, and about two inches in diameter. C. cœrulea is a perennial species, with blue flowers, from two to three feet high.

Botanic Garden, Northampton, Mass. *Edward J. Canning.*

Some Good Annuals.

THE dwarf compact Swan River Daisy, Brachycome iberidifolia, makes a handsome bed at this time. It is only some eight inches high, and the many-branched stems are terminated by loose clusters of small, blue, Cineraria-like flowers. The flowers are produced abundantly, and a single flower measures one inch across. The white-flowered form of this plant is very desirable and makes a good companion for the one with blue flowers. To secure the best effect a number of plants should be massed together in a light sandy soil and an open sunny position, where they keep on blossoming for many weeks.

Another showy genus from Australia is Rhodanthe, now included in Helipterum, although for garden purposes it is distinct enough to be kept separate. R. Manglesii is a distinct plant, a foot in height, with erect, glabrous and corymbosely branched stems. The bright rose-colored flower-heads are produced on long peduncles. The flowers are "everlasting," and when dried are useful for winter bouquets. A light sandy soil and a sunny position also suits this plant well. It also has a white-flowered variety and a form with double flowers, both of which are desirable garden annuals.

Sanvitalia procumbens is a dwarf Mexican annual that was introduced from there in 1798. It is a slender, trailing plant about six inches in height, and its compact habit makes it useful for edging beds or planting in masses in small round beds, where it makes a conspicuous yellow mass of color. The flower-heads are small, but they are produced in great numbers. The form with double flowers is very desirable and grows with as much ease as the typical plant.

Monolopia major is an annual composite plant from California that has showy terminal, solitary, sulphur-yellow flower-heads about an inch in diameter. The plants grown here are about fifteen inches high, and they have narrow entire leaves and are attractive now with their distinct flowers. This plant grows freely in any ordinary garden soil, but prefers a sunny situation.

The genus Phacelia contains many showy garden annuals which are easy to grow. P. viscida is a showy species with branched stems, a foot in height and broadly ovate, subcordate leaves. The blue flowers are of a good size and borne on racemes. P. tenacetifolia makes a handsome bed of blue. It grows about eighteen inches high, and the flowers are carried in dense spike-like racemes. P. divaricata is a desirable plant; so is P. Parryi, a dwarf species about six inches high, with fine large flowers of a dark violet-blue. All these species flower plentifully and the plants are very attractive for some length of time.

A small bed of Lychnis cœli-rosea in the garden has been very bright for several weeks, and is much admired. The plants are about fifteen inches high and are just now all ablaze with bright rosy purple flowers. This Lychnis is well adapted for growing in masses, and in this way it is most effective. It was introduced from the Levant one hundred and eighty years ago, but is now rarely seen in gardens here.

The annual Bellflowers when well grown make neat plants, and they produce a good supply of showy flowers. Perhaps the most singular plant in the genus Campanula is C. macrostyla. The height of the plants grown here is about fifteen inches and the stems and leaves are bristly. The lower leaves are ovate-oblong and acute, while those on the upper part of the stems are ovate-lanceolate, hispid on both sides and ciliated with bristles. The flowers are large and borne singly on stout hairy stalks, and their color is dull purple, reticulated with violet. The length of the stigma is the most remarkable part of the flower, and the large calyx is interesting. This showy Bellflower is a native of Asia Minor. The seeds from which our plants were raised were received from Mr. J. N. Gerard, Elizabeth, New Jersey, who said they came from Asia Minor. We have grown this plant many times before, but the plants now in bloom have larger flowers than the ones we once grew. The plant ought to have a place in every garden of any pretensions. Another good annual Bellflower is C. Loreyi, a plant that comes from the south of Europe. It makes nice, compact, bushy plants about nine inches in height, with stalkless shining leaves. The flowers are produced in quantity, so that the plant is quite decorative when its blue-violet flowers are in good condition. The white-flowered form of this plant is common and makes a neat and distinct plant. A position near the front of a sunny border, in light and fairly rich soil, is best suited to their wants.

The genus Clarkia has a few showy species and varieties which are common and useful garden annuals. These native annuals are very effective, robust in growth and showing a profusion of showy flowers for a long time during the summer. Clarkia elegans is a much-branched plant, having long leafy racemes. It is about two feet high and has lanceolate-dentate leaves; the petals entire, broader than long, and are of a lilac-purple color. There are quite a number of desirable varieties of this plant; some of them have white flowers, others rose, and the double-flowered kinds are good. C. pulchella is another species with a good habit, and it is also very floriferous. The height of this plant is about eighteen inches, and its stems are clothed with linear leaves. The pretty flowers are of a purple color and plentifully produced. The varieties of this species make desirable plants. Clarkias grow freely in rich light sandy soil and a sunny position, and as their flowering season lasts for some time they are well adapted for planting in small beds. They should be planted six or eight inches apart each way as they grow fast and do not make such stocky plants unless they have plenty of room to show their character and develop themselves properly.

Emilia sagittata is a pretty compositæ nearly related to the Senecios. Its bright orange-scarlet flower-heads are produced very plentifully on long slender stems and they measure about one inch across. A small piece of ground planted with this Emilia makes a good mass of a bright taking color just now. In a light sandy soil and a sunny position it will produce a wealth of flowers for two or three months.

Crepis rubra, or sometimes found under the name Barkhansia, is a serviceable annual about a foot high, and it has large showy flower-heads. This plant is the best species belonging to the large genus. Crepis has one hundred and thirty species, but most of them are weedy and inferior as garden plants. The red flower-heads are borne singly on long stems, and they measure over two inches across. The white-flowered variety is also desirable. All these annuals are raised from seed sown about the beginning of April in pots, or boxes if a large number of plants are needed, in a moderately warm greenhouse. When the seedlings are large enough to handle

they are pricked into boxes or pots of fine soil. In a week or two they are large enough to put into small pots and then removed to a frame where they are kept until the weather is warm enough to plant them in the garden. Some will think that it is unnecessary work to put the seedlings into small pots, but experience has taught me that it is by far the best way to grow them. When planting time comes they are rooted in a nice solid ball of earth and never stop growing when put in the ground.

Harvard University Botanic Garden. *Robert Cameron.*

The Propagation of Tender Plants.

MIDSUMMER is a good time for the propagation of various warm-house plants, for, while some care is required to avoid the damping off of cuttings of tender plants, many will root rapidly now and become well established before winter. Among these are such admirable kinds as Cyanophyllum, Sphærogyne, Medinella, Rudgea microcephala and the Nepenthes. They will all root more readily in single-eye cuttings, unless short, stocky side-shoots of firm young growth can be secured, the latter forming useful plants more quickly than the single eyes. The cuttings should be firmly planted in small pots singly, and, as a rule, they will form roots more quickly in cocoa-fibre than in soil. They should be kept rather close during the daytime in a propagating-frame or under a bell-glass, and have more air at night to prevent any undue accumulation of moisture.

The Nepenthes will, I think, make more stocky and short-jointed plants from side-shoot cuttings than from eyes, and plants of this description produce better pitchers. The Aralias can also be propagated to advantage now; some root quite readily, while others require grafting. A. leptophylla, A. Guilfoylei, A. reticulata, A. filcifolia and A. Chabrierii usually root in a reasonably short time, but the beautiful A. Veitchii and A. Veitchii gracillima root rather slowly under this treatment, and can be increased more rapidly and surely by grafting on A. reticulata or A. Guilfoylei. If kept rather close and well shaded in a propagating-frame the scions will soon unite with the stock and will grow away freely in a warm house after removal from the frame. These two (A. Veitchii and its form) are well worth the extra trouble, both being highly decorative in the greenhouse and also valuable for vases and veranda-boxes during the summer.

The Dieffenbachias also, of which there now is quite an extensive list, can be propagated at this season quite easily, cuttings with foliage being not absolutely necessary for this purpose. A specimen that has become leggy and unsightly from the loss of its lower leaves will furnish good material for the propagating-bench. The stem should be cut into pieces of a single joint; the cut surfaces should be dipped into slaked lime to prevent decay, and planted in sand. In most cases they will send out roots and start into growth in a few weeks. Poinsettia cuttings may also be taken now in order to furnish the dwarf specimens in five or six inch pots, useful for winter decorations. These cuttings must be watched closely to prevent wilting of the foliage and also overwatering.

The Bertolonias and Sonerilas form pretty little specimens when several young plants are placed in an eight or ten inch pan in light rich soil, and the plants for this purpose can be rooted in a very short period during the warm weather. One point to be remembered in their cultivation is pinching off the flower-buds as they appear, to insure large leaves and strong growth.

Dichorisandras are but little grown, though at least two of them are worthy of a place in a collection of stove-plants. D. musaica and D. undata are both interesting and pretty, and form handsome specimens when several young plants are grouped in a pan.

The various Begonias required for foliage and for flowers during the coming winter will also require potting on before they become stunted, and a basket of well-grown B. glaucophylla scandens is an attraction for the conservatory.

Holmesburg, Pa. *W. H. Taplin.*

Chrysanthemums.

CHRYSANTHEMUMS intended for specimen plants should now be gotten into shape. Up to this time it has been the object to develop as many growing shoots as possible. Except for a few runaway shoots, no more stopping will be required. If stopping has been properly carried out the tying of plants into a neat bushy form will be comparatively easy. It is a good plan to keep this work well forward. It is a difficult matter to properly adjust the shoots of plants which are overgrown, especially when the season is advanced. Some injury must necessarily result to the roots from severe staking, and the sooner the plants are well spread out, and as many stakes put into the ball of earth as it is expected to use, the better it will be. We always aim to complete this work some time during August so as to interfere as little as possible with root development later on. After staking out is finished the use of manure-water should be discontinued for a week, or until root action is again well established.

In growing fifty or more plants for a season there is some peculiarity about each variety which a careful cultivator will not fail to notice; whether it is in the soil or the manner of potting, or in the porosity of the pot or in natural conditions peculiar to the plant. Some varieties will take more water than others. It is of the utmost importance that this circumstance should be carefully noted. It would be an easy matter to overwater Ivory or Cullingfordii at any time, or G. W. Childs early in the season, though later it will take an abundance of water. Louis Boehmer, Golden Hair, Minerva, Jos. H. White or W. H. Lincoln might be watered ten times a day without injury. If these conditions are noted they should be kept in mind when using manure-water. Weak plants may be benefited by stimulants if they dry out freely, but if slowly it is better to use it sparingly. That weak plants need or will bear more than stronger plants is the reverse of true.

We have tried many kinds of stimulants with varied results. The safest are the best. Unless the exact strength of chemical fertilizers is known it is best to avoid them. Drainings from the barnyard contain nearly all the elements of a complete plant-food. If collected in a basin they should be well stirred before being used, as all the valuable ammoniacal salts lie at the bottom. They should be diluted to one-twentieth part to begin with, and made stronger as experience dictates. Sheep manure is excellent when used either as a top-dressing, half and half, with loam, or in a bag to leach out its strength in a tub of water. One pound to ten gallons of water makes the liquid about right for use. Sheep manure is highly charged with ammonia, and its action is quickly seen. If beneficial the foliage will be green and fresh-looking; if injurious it soon changes to yellowish green. When this misfortune happens it is due to the manure being too strong, and it must be discontinued at once. Root injury is the cause of the trouble, but by keeping the plants underwatered for a week or two they will generally recover. I have had this injury happen more than once. Some of the plants affected not later than the end of August have come out healthy, and they have been among the winning groups at the Boston show.

Many of the plants intended for specimen blooms will be showing the July bud. Except for a few varieties, it is best to discard it. If it appears on Edwin Molyneux, on plants which have been rooted in March, toward the end of the month of July and up to the 15th of August, it should be retained. This variety needs special management in this respect, and buds taken before or after the dates given nearly always produce blooms out of character.

The terms "crown" bud and "terminal" bud are confusing to many people, even to some growers. "First" bud and "last" bud would be more easily understood. The crown bud terminates the stem at one stage of its growth, the terminal bud is so named because it is the last bud formed. Shoots proceeding from below the first bud may bear terminals, or last buds. Often, however, on plants from cuttings rooted during May there will be a second or modified crown bud, below which true terminal, or last bud, shoots proceed. It is not an easy matter to define these buds with the terms we have. There are invariable structural characters, but a practiced eye only will note them. All crown, or first buds, are bracteate, and occur singly. All terminal, or last buds, are bractless, and occur in clusters of from three to ten buds.

Having discarded the first crown bud when it appears in July, we are left to take one of the other two. Either bud is good, and growers are guided by experience. The terminal, or last bud, is generally a few days later in maturing, but is better in color, though not so heavy in build. Where head-room is a consideration, the August bud is the better.

Wellesley, Mass. *T. D. Hatfield.*

The Globe Artichoke.

THIS is one of the table luxuries that has rapidly come into use in recent years, and now in all gardens of any pretensions we see it cultivated for the succulent portion of the flower-head. The plant, Cynara Scolymus, is a perennial, and, indeed, were it not of culinary value, would be prized as a border plant of no mean pretension, owing to the huge thistle-like heads of showy blue flowers and elegantly cut luxuriant gray-green foliage.

Cynara Scolymus is but a cultivated form of C. Cardunculus, and is not known in a wild state. The latter is the Cardoon of gardens, and differs but little in appearance from its relative; it is cultivated, however, the same as Celery and cooked when the tender heart is blanched. It is seldom seen here, and is rarely used except by French cooks. In France great attention is paid to the cultivation of both these vegetables, and it is safe to say that nowhere else are such fine heads or such highly improved varieties to be seen. The Messrs. Vilmorin, of Paris, have done much toward bringing about this desirable result, and last summer they showed heads in London that created much comment in English journals. This improvement is largely the result of careful selection, together with good culture. "One plant, one flower" is a maxim there, and no doubt this is sound advice, as we have proved this season. The side shoots produce heads of inferior size and flavor, and they are rarely large enough to send to table, especially after larger ones have been used.

Another reason why we have missed perfection is in trusting wholly to seed for our plants, for it is possible to treat Artichokes as annuals, saving one good head for seed to raise another year under glass. These will all flower the first season if sown early in the year, and we have such plants now showing flowers. But the objection to this practice is that seedlings vary, and the tendency is too often to revert. The variation is quite marked in the individual plants. Sometimes a specially good form will make its appearance, and here is the opportunity for the cultivator to lift the plant in fall, winter it over in the greenhouse, and carefully divide it as often as offsets are produced, with portions of root attached. All these should be set out in favorable spring weather. It is not wise to trust to seed for reproduction of these plants.

Artichokes will thrive here in any soil that is naturally well drained in winter. They can be protected from the cold with success, but moisture is fatal when the plants are dormant, though they need a large amount in the growing season. We set the young plants at least three feet apart. It would be better to have the rows five feet from each other to prevent damage to the leaves when walking between the rows. The soil is made very rich to start with, and the surface covered in summer with a mulch of some non-conducting material, such as lawn clippings or straw from the stable. This answers another purpose in keeping down all weeds. We find that a top-dressing of salt also helps to keep down weeds, and is besides a good fertilizer for the plants. Many growers use seaweed for this purpose, as the Artichoke is of maritime origin.

In young plants of the first year it is well to cut off the flower-stem as soon as the head is cut; we find that the effort to flower is sometimes too much, and the plant dies without making any buds for its reproduction next year. Individual plants sometimes act as if they were annuals, and if these die out a gap is left in the beds. When cold weather sets in they must be protected for winter. We have tried various plans with greater or less success; if superfluous leaves are cut off and the plants tied up closely to the tops and the earth banked up to this height, or a few inches above, just before the arrival of frost, there is no danger of their dying from cold. To make sure to keep out moisture we nail two boards together and place these along the ridge of the bank to effectually throw off snow and water. In very severe sections it may be well to place leaves or straw about the banks of earth to help protect the plants. We have found it better not to do this until hard frosty weather has set in, so that the field mice that will most surely be attracted to this harbor will not be able to penetrate the earth and devour the hearts of the plants; they are very partial to these morsels, and seem to scent them from afar, but if the soil is well frozen on the outside the covering will tend to prevent its thawing, and the plants are safe from all danger. We have lifted the plants and put them in a cellar to winter over; also placed them in an unheated structure, but in each instance the results were unsatisfactory, owing to the loss from damping off of the crowns. Cold will arrest this in the open ground, and if they are uncovered in spring as soon as the weather favors the removal of the cover there will be very rapid growth and an abundance of fine flower-heads, provided the side-buds are picked off. It should be added that, when tying up the plants previous to covering them with earth, a stake should be placed to each one. This will materially assist in the operation and will be valuable in indicating where the crowns are when opening them up in spring. Otherwise some are sure to be injured. Before uncovering we put in a lot of rich manure in the trenches, and this is covered up with the earth as it is leveled.

It is not too much to predict that if more care is taken in the cultivation of this fine vegetable there will be a much greater demand for it. Where it is necessary to produce a large quantity of vegetables for home use, of as much variety as possible, the Artichoke will be found a desirable change, and it is not, on the whole, difficult of cultivation if a few requirements are borne in mind.

South Lancaster, Mass. *E. O. Orpet.*

Floating Plants.—Among the aquatic floating plants—that is, those which grow with their foliage lying on or above the water and their roots submerged—which are well adapted for growing in company with the more pretentious Nymphæas and Nelumbiums, are several which alter their appearance according to their surroundings to such an extent that they are sometimes taken for distinct species. The leaves of Salvinias, for example, when allowed to float on the surface of a large tank or pond, have a flattened-out appearance, and the plants are weak compared with specimens grown in the full sun in a confined space where the sun does not reach the root-like processes in the water. When grown in this way, the leaves—that is, the upper ones—are almost folded together, and very large, the plants crowding each other, in some cases two or three inches above the line of the water. In a confined space the spore capsules are produced most abundantly, while they are seldom seen on plants which float about in the open water. Azolla pinnata is another plant which behaves much in the same way. Pistia stratiotes, when the plants are crowded together so that the sun does not reach the roots, form very thick leaves and flower abundantly; but if the plants are grown singly in a tank so that the sun has access to the roots they soon turn sickly.

Clerodendron fœtidum.—This plant, better known as Clerodendron Bungei, is one of the showiest among the many fine species of this genus. It is a native of China and has been in cultivation for a long period, unfortunately as a stove or greenhouse plant. It has been reported lately from a good source to be one of the finest hardy plants for the southern states. It is hardy in most winters, even as far north as Baltimore. The plant may be said to be herbaceous, as it throws up annual stems to a height of from three to four feet, each stem crowned with a very large corymb of bright pink flowers. When in full bloom a colony of plants in a suitable place in the garden makes an effective display. The leaves are large, heart-shaped and opposite to each other on the stems. As a greenhouse pot-plant it is not successful, since a plant in a six-inch pot does not have sufficient root room to throw up a fair-sized growth; moreover, when the plant is sickly it is a favorite one for mealy-bug and scale insects. Propagation may be effected either by cuttings of the young growths or by dividing the plants. If wanted in large quantities the thickest of the roots should be washed free from the soil, cut up into pieces about an inch in length and placed one inch deep in boxes of sand. They will sprout within two weeks if kept in a growing temperature.

Botanic Garden, Washington, D. C. *G. W. Oliver.*

Correspondence.

Edible Barberries.

To the Editor of Garden and Forest:

Sir,—I see that the nurserymen's catalogues enumerate several varieties of edible Barberries, some white, some red, some violet. Will you tell me which of the species bear the best fruit?

Asbury Park, N. J. *W.*

[Most persons do not find Barberries very grateful to the taste, and they are generally neglected when other fruit can be had. However, when made into jams and jellies they are considered by many both wholesome and palatable, and the acid berries themselves without any preparation are relished by some persons. The fruit most used is that of the European Berberis vulgaris, and this varies very much on different plants in shade and size and flavor. By cultivation and selection varieties with black, purple, violet, yellow and white fruits are now offered for sale, and there is a so-called seedless variety. All of these are forms of the common European Barberry, and, perhaps, the fruit which most nearly approaches the normal red color may be generally regarded as the best for culinary purposes, as the pale or whitish fruits are often poorly developed. B. vulgaris has become so common and so thoroughly naturalized in our eastern states that is often regarded as a native plant. No

doubt, by careful selection with a view to securing large and juicy fruits, better and more edible varieties than any we now have could be produced.

The Mahonia or Oregon Grape, Berberis Aquifolium, is well known for its dark evergreen Holly-like leaves, large clusters of bright yellow flowers, and large grape-like fruits covered with a dense blue bloom. This fruit is said to be much used and valued in some parts of the Pacific states. B. buxifolia, sometimes called B. dulcis, is a narrow-leaved evergreen species, a native of Chili and Patagonia. In Sweet's *Flower Garden* the fruit is said to be used in its native country, "both green and ripe, as we use gooseberries for making pies, tarts and preserves, for which it is most excellent. The berries are round, black, about the size of a Black Currant, and are produced in great abundance." This species is not very hardy in northern gardens.

Many of the other species of Berberis, of which there are a great number, produce juicy fruit which can be utilized. Among the least valuable from a domestic point of view is the fruit of the showy Japanese species, B. Thunbergii. This is not as juicy or pulpy as that of most other species, although it is more ornamental in winter after the fruits of others have dried and faded.—ED.]

Privacy in Suburban Life.

To the Editor of GARDEN AND FOREST:

SIR,—In the June number of *The Cosmopolitan Magazine*, Mr. R. C. Sturgis, a well-known Boston architect, published an article pleading for more privacy in our homes and deploring the bare and forlorn appearance of our average suburban towns. This article has been noticed in GARDEN AND FOREST by two editorials, but, to my disappointment, although agreeing with Mr. Sturgis in deploring the present state of affairs, the remedy suggested by him of adopting the English methods of treating small places is declared to be unsuitable for our country.

If, however, we look in Europe for other examples, we seem to find none that so well suit our climate and mode of life. The chief difficulties that lie in the way of our adopting the methods as described by Mr. Sturgis apparently consist in the greater cost of labor with us and in the different character of our climate. To the first objection it may be answered that, although the price of labor is greater here, our suburban proprietor is receiving a salary correspondingly larger than that of his English cousin. As regards our climate, we hear a great deal of our scorching sun in summer and intense cold in winter, yet there is an abundant supply of trees, shrubs and flowers that thrive admirably with us; and, in fact, with the exception of evergreen shrubs, we are fully as well supplied with material for planting as they are in England; neither is the lack of moisture very severely felt in most small places, where the abundance and cheapness of our water-supplies allow a free use of the hose. The difficulty of growing flowers in our climate has always been greatly exaggerated; once the soil has been properly prepared they require but little care.

I cannot agree with the advice you give to place flowers in the front edges of the shrubberies; with but few exceptions they give poor results when robbed by the roots of shrubs. Such places can be better filled with spring bulbs of Crocus, Narcissus, etc., that will enliven the border in the early spring and whose decaying leaves will be covered later by the branches of the shrubs. A separate place should be reserved for flowers alone; it was formerly the custom to reserve the front yard for a flower garden, but a much better arrangement is to place it on one side, where it can be more easily screened from the highway as suggested by Mr. Sturgis. It can be connected with the house if desired, but in any case it should be screened on at least two sides by shrubs. Such a garden filled not with scarlet Geraniums and Coleus, but with our fine perennial flowers that come up year after year and require but little care, would be a constant source of delight to its owner.

The true reason for the bareness of our suburban towns is the result of an unfortunate fashion which claims that by removing all fences and boundaries a more park-like effect is produced. This fashion, although it has never received the sanction of our leading landscape-architects, has met with great success, and in this part of the country the fences have almost entirely disappeared, and with them, unfortunately, the gardens and shrubberies as well. The crusade which Mr. Sturgis is leading against this fashion seems worthy of the assistance of GARDEN AND FOREST, and his suggestion for improvement ought not to be condemned unless some scheme that is definitely better is proposed. The vague allusion to a future American suburban garden, which is not described in detail, hardly meets the case.

Some solution of this problem of suburban homes would be of great interest to American architects, and if GARDEN AND FOREST were to give us a series of articles on the treatment of small suburban lots, they would, I think, be gladly copied in our architectural papers. Unfortunately, the architect is too often forced to do work that more properly belongs to the landscape-gardener, for, although for estates of more importance, the client will usually consent to the employment of a landscape-gardener, in the case of a lot of small size such a request from the architect is rarely accepted. The architect is then placed in a quandary and not unnaturally looks to a paper like GARDEN AND FOREST for assistance. After all, the main point in Mr. Sturgis's article is a plea for privacy; the question of more or less formality in the arrangement of our grounds will always be a matter of individual taste, depending largely on the style of the house and the general lay of the land, although our suburban lots being usually level, a formal arrangement would seem to be the simplest. The high walls of England covered with Moss and Ivy are undoubtedly out of place in our dry climate, but the same result of privacy can be attained during the summer months at least, when such privacy is most needed, by either belts of shrubs and trees or hedges. It is argued against the use of hedges that gaps may occur in them, but this will apply also to a row of trees or a garden-edging, and when properly planted such gaps occur but rarely. The labor of trimming a hedge is slight and requires little skill, and we have a large number of deciduous trees and shrubs admirably suited for such purposes. In spite of our much-abused climate we are unusually fortunate in a large choice of the so-called garden trees that are especially well adapted for small places, and a border of Crabs, Thorns and Magnolias, with smaller shrubs in the foreground, can give us as good effects as any produced in England, while serving as a screen from the highway as well.

Our houses, too, often stand bare when they should be covered with vines, and the foundation walls are unscreened when low shrubs should be planted against them to join the house to the ground. Few people realize how greatly a house is influenced by its surroundings; the old Colonial Homestead, stripped of its twin Elms and its enclosed garden gay with flowers, would lose the greater part of its charm.

In conclusion, allow me to ask the readers of GARDEN AND FOREST to study the interesting plans which Mr. Sturgis has published, and I believe they will find that their leading features can be profitably adopted in American gardens as well suited to our climate and our mode of life.

Boston. *Architect.*

Recent Publications.

First Principles of Agriculture. By Edward B. Voorhees, A.M. Silver, Burdett & Co., Boston, Massachusetts.

This little book of two hundred pages does not consist of elementary treatises upon the various sciences which are the foundation of agricultural practice. It is simply meant to be an orderly presentation of such principles as are needed for the instruction of pupils in country district schools where the study of primary agriculture forms a part of the curriculum. Mr. Voorhees is the Professor of Agriculture in Rutgers College, and his experience has led him to believe that scientific agriculture can be taught in these schools in a sufficiently clear and simple way and to a sufficient extent to make what is learned there a safe guide in the ordinary operations of the farm and to constitute a proper foundation for future study. The scientific facts here stated seem to have been well selected for their purpose—that is, for example, what is said of the origin and formation of soils, of their composition and the means of improving them, are all up to a certain point subjects which can be treated within the comprehension of any bright boy or girl, and made most interesting. Whether this book will fulfill its purpose, however, depends to a large extent upon the teacher, who ought to have a much wider and profounder knowledge of chemistry, botany and biology than the elementary principles which are here enunciated. The facts are clearly stated, and in accord-

ance with the latest researches, so that the teachings of the book can be trusted as sound.

A thoroughly successful text-book on agriculture, for the use of public schools, is not an easy work to produce, for its author needs much more than a knowledge of the subject. The facts should be presented to young minds in such a way as to arrest attention and make their journey through these new fields attractive at every step. It would seem that pictures and an abundance of illustrative examples are features which could not be dispensed with. Abstract statements are dry to young people when concrete examples may be full of life. Mr. Voorhees is going over ground where comparatively few authors have trodden, and he has not many examples for his warning or profit. No doubt, experience will show where this book can be improved, and when one better adapted to its purpose appears it will probably differ from this one not so much in the range of subjects treated as it will in a more vivacious and pointed way of stating facts and greater care in leading up to them by natural and easy stages.

Notes.

The apple export trade has already begun, and on last Saturday a shipment of Summer Queens and Alexanders was made from this city to Liverpool.

Black Republican and Royal Ann cherries are still coming from Oregon, but there is little demand for this fruit now, when it is no longer at its best, and when eastern fruits are abundant and in large variety.

The pineapple season is now nearly closed, 2,500 barrels having arrived from Havana last week and about 400 barrels during the early part of this week. Small supplies of this fruit will continue to come from Florida during this month and August.

The sale of the first car-load shipments of California fruits to England this season occurred at Covent Garden, London, last Friday. In the absence of French fruit good prices were anticipated, but, although the California fruit was in sound condition, it was not of the requisite quality to command the highest prices. Not a few of the Bartlett pears in 3,800 half-boxes comprised in the shipment were small, and prices ranged from eighty-seven cents to $2.62, while plums realized $1.87 a crate. Prices in this city last week ranged from seventy-five cents to $2.10 for Bartlett pears and from sixty-five cents to $2.15 for plums.

The pomologist of the United States Department of Agriculture writes to *Meehans' Monthly* that the true name of the apple Rawles' Janet is Ralls' Genet. The apple was said to have been named for Monsieur Genet, the Minister of the French Government to this country during Washington's Administration. Monsieur Genet had apples of this kind sent from France for his own use, and Mr. Jefferson so admired them that he procured scions and gave them to Caleb Ralls, a nurseryman of Virginia, for propagation, who introduced the tree under the name of Genet. The apple has also been called the Jefferson Pippin, which authenticates in a measure the fact that Jefferson was connected with its introduction.

In Belgium, and in some other parts of Europe, the young shoots of the Hop-vine are cooked and served in the same way as asparagus. The shoots used for this purpose are blanched while passing through a mass of leaves or litter with which the stock is covered when they are to be used in this way. It is said that Hop-shoots have been used as a vegetable in England, although they have never been utilized as an article of commerce as they are in the Low Countries. There is nothing new about this, for, as a writer in *The Gardeners' Magazine* reminds us, Gerard speaks of the practice in his *Herball*, published three hundred years ago. We are not aware that hops have ever been used in this way in America, and we should hardly expect them to compete successfully with asparagus.

In reply to many inquiries addressed to the Cornell Experiment Station, Mr. E. G. Lodeman has collected as much as possible of the scattered experience of those who have grown dwarf Apples. The fact is, however, that these trees have been so sparingly and so carelessly grown that very little definite evidence of any value has been obtained. It is probably true that apples on dwarf trees are handsomer and of a better quality than those grown on standards, so that the dwarf trees may, perhaps, be profitably used for growing varieties for fancy or dessert use. Such trees can be easily sprayed and the fruit can be easily thinned. Paradise stock is evidently the best to use, but Mr. Lodeman concludes that he cannot advise the planting of dwarf Apple-trees for any commercial reward. Experiments with these trees are worth making even for this purpose, and they certainly are for other purposes.

The so-called late blight has been very destructive to Potatoes for some years in many parts of New England, but Bulletin 38, issued by the Rhode Island Experiment Station, declares that it can be kept in control by the proper use of Bordeaux mixture. It does not seem to be necessary to treat the plants before the outbreak of the blight, whose presence can be recognized easily by the sudden blackening of large patches on the mature leaves and the peculiar odor given off by the decaying tissue. When the blight appears the plants must be promptly treated, however, and all their parts thoroughly covered with a film of the mixture in order to save them. The coating can be seen after the leaves have dried off, and if it is found imperfect the machinery and method should be inspected, changed if necessary, and the operation repeated until the job is well done. Spots of the liquid upon scattering leaves may do a little good, but spraying all the plants completely is the only assured safety.

In his report on the flora of Wyoming, Professor Aven Nelson remarks that the power to withstand frost which has been so remarkably developed in mountain floras is an unceasing cause of wonder, and the great beds of Phlox, Mertensia, Gilia, Actinella and other plants which he saw blooming freely when the night temperature fell to from five to twenty degrees below the freezing-point, suggested questions which are difficult to answer. Professor Nelson thinks that reduced atmospheric pressure plays an important part in preventing injury to plants, for the same species at lower altitudes would certainly perish in such cold. As an illustration of this he states that late in August, 1890, he noted a plot of Potatoes in full blossom at an elevation of some 9,000 feet. For three successive days he watched these plants, which then showed no trace of injury, although every night there were heavy frosts and ice formed in exposed water-pails. Such a degree of cold would, of course, have killed Potato plants, growing at the sea-level.

In Paris, where wood has been, to a large extent, substituted for asphalt and other paving material, southern pine is very largely used for blocks. These are laid on a concrete foundation, and, as is well known, the streets are less noisy and the pavement is considered more durable than any other. It would seem that if yellow pine pavement is the best for Paris, where public works are constructed with a view to the greatest economy, combined with utility, the same material could be used in America, especially in our southern cities. Experiments with wood pavement in New York and Chicago have been discouraging, but it may be that the fault was as much in the construction as in the material. In a climate where the ground freezes to the depth of three or four feet the foundation of the road would be unsettled to a degree unknown in London or Paris, and this upheaving may suffice alone to account not only for the stability of roadways, but of walls in England which endure for centuries, while they crumble and tumble here when only a few years old.

It is claimed by some persons that Cottons grown in India and Egypt are superior to the ordinary varieties grown in the south, and owing to the increasing importation of the staple into this country the experiment stations have been cultivating several varieties of Cotton from India and Egypt in order to compare their properties with our native forms. Of course, nothing definite can be determined about these plants until they have become acclimated by some years of careful cultivation. At Auburn, Alabama, experiments have been made in naturalizing these plants with the effort to secure the best results, so far as the health of the plant is concerned, that the soil and climate will permit, and cross-fertilization was then tried in order to unite the best properties of the foreign Cottons with those of the superior grades of American varieties to produce an exceptionally good plant. Last year several hundred crosses were made between American and foreign species, and from the seeds gathered the station has been quite successful in growing these cross-bred plants. Of course, it is too early to pronounce with definiteness the final results of these trials, but they will be watched with interest.